CEO Stock Option Awards and Regulation Changes

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I. Introduction

In 2003, both the New York Stock Exchange and NASDAQ enacted changes to the requirements regarding listed companies and their Board of Directors composition. The changes placed stricter restrictions on who could sit on the compensation committees of listed companies. The purpose of this study is to examine the effects of those changes, specifically in relation to CEO compensation and compensation committees. Prior to the regulation changes, Yermack [1997] explored the topic of CEOs manipulating the timing of their stock option awards by using their influence over their compensation committees. He found that in general, CEOs received stock options just before good news was released about the company. In theory, CEOs would then benefit from the following scenario: a company would release good news, leading to an increase that company's stock price and in turn raising the value of the CEO's stock options. In this study, I look at the same timing issues Yermack studied, but for companies at a post-regulation change date. Furthermore, I consider the differences between the pre-change and post-change values to analyze the control effects the regulation changes had on CEO stock option awards.

The remainder of this paper is organized as follows. Section II overviews the previous literature on related topics. Section III describes my methodology and the accompanying data. Section IV discusses the results, and Section V explores potential areas for future research. Finally, Section VI concludes.

II. Literature Review

Academic literature about the effects of corporate governance on CEO compensation reveals mixed results. However, these mixed results are not necessarily

unexpected. An issue at hand presented by many researchers is that the off-equilibrium scenario plays a major role in corporate governance, but cannot be observed. This leads corporate governance research to become what Demski and Sappington deem to be a “summarization with errors” in Demski and Sappington [1999]. The key components of CEO compensation, the CEO’s pay structure and her performance, are both multidimensional and contain unobservable factors (such as friendship, jealousy, etc.). As such, my research focuses on an observable factor, stock option timing, while keeping in mind the importance of not overextending the reach of my conclusions.

In the aforementioned Demski and Sappington [1999], DS take a broad look at the corporate governance research conducted. Through their examination, DS find many potential pitfalls for research resulting from the oversimplification of the connection between manager pay and performance. The prominent idea here is that manager performance and compensation are both multidimensional and that it is extremely difficult, if not impossible, to accurately measure the various dimensions of performance and compensation. As an example pitfall, DS discuss the lack of consideration for intertemporal effects in previous studies of manager compensation. Oftentimes, these intertemporal effects are many, but research simplifies the effects and aggregates them into one overarching effect that happens to change over time. Again, the key issue here is not the oversimplification of factors affecting manager compensation and performance, but rather it is the understanding that many of these factors are simply unobservable, leaving corporate governance and manager compensation research to be a “summarization of errors”.

Demski [2003] further explores this idea, speaking to the role of multiple players and multiple conflicts of interest in corporate governance. With so many players involved, the conflicts and relationships become more complex. While simplifying the situation is useful for instructional purposes, considering the complexities is important when studying corporate governance. If a researcher does not acknowledge the presence of certain unobservable factors, it could easily lead to off-base conclusions. For example, in Antle and Smith [1985], AS find that implicit manager contracting arrangements are just as important as explicit arrangements are to measuring manager compensation. Although valuing those implicit arrangements is extremely difficult, at least taking them into consideration is essential.

In Bebchuk and Fried [2003], BF explore the concept that executive compensation is both a solution and part of the agency problems prevalent in the corporate world. To their point, the authors show that the Board of Directors actually has little incentive to work against the CEO in terms of the CEO's compensation. The Board is subject to the same agency problem it is trying to solve, for the power to re-nominate directors resides with the CEO. Core, Holthausen, and Larcker [1999] seem to have evidence supporting this argument. In their study of the effects of weak corporate governance, CHL discover that there is a significant negative association between the percentage of the Board composed of inside directors and the total compensation of the CEO. With a strong emphasis on company Board of Directors, it seems appropriate to analyze changes affecting the composition of the Board.

Extending beyond CEO compensation, there is much corporate governance research relating to stock pricing and the timing of certain stock price fluctuations. In

Patell [1976], Patell studies the information conveyed to stockholders through forecast disclosures. A key component of Patell's research is the presentation of the cumulative abnormal return (CAR) calculation. A CAR essentially represents the performance of a company's stock price above or below what is predicted. Dodd and Warner [1983] use a methodology similar to Patell to calculate abnormal returns as they examine stock price activity around proxy contests.

Yermack [1997] follows Dodd and Warner's methodology to analyze the stock prices that occur before and after company stock option grants. The key finding in Yermack's study is the potential manipulation of stock option award timing, which allows managers to receive their stock options just before the company releases good news. So managers would benefit from a jump in their company's stock price occurring immediately after they received their stock options. As previously mentioned, much of my work follows up on Yermack's stock option timing analysis and this finding, except in a different time period following the 2003 regulation changes.

III. Yermack's Stock Option Awards Revisited

When Yermack originally conducted his study, regulations regarding Board of Directors composition were far more relaxed, and CEOs could sit on their own compensation committees. In fact, Yermack explicitly examined the cases in which the CEO did sit on the compensation committee. However, since 2003, the regulations have changed for the NYSE and NASDAQ. NYSE [2003] explains that for companies to remain listed, their compensation committees must be entirely independent. NASDAQ [2003] features a similar stipulation for their listed companies, requiring that CEO compensation be approved by an independent committee or by a majority of

independent directors during an executive meeting. These rule changes, if properly enforced, put an obvious damper on the influence CEOs have over the compensation committees. However, the possibility remains that CEOs can find some new, unobserved method of influencing the timing of their stock option awards. In this study, I put that possibility to the test and examine the differences between data representing a time period prior to the regulation changes of 2003 and data from a year following those regulation changes.

To analyze the effects of the regulation changes on CEO stock option awards, I use Yermack's methodology for both the pre-change and post-change values. Specifically, I collect CEO stock option data from the proxy statements filed by Fortune 500 companies in 1997 and in 2004 (my reference companies are all included on the 2004 edition of the Fortune 500). I also use the Execucomp database to supplement the data presented in the proxy statements. For the 2004 companies, the proxy statements reflect the actions of the companies following the regulation changes made by the NYSE and NASDAQ at the end of 2003. The stock option data of interest here are the strike price and the award date. Much like in Yermack's study, my methodology and analysis revolve around the award date of the stock options. In cases with multiple people holding the position of CEO during the same year, I again follow Yermack's original method and use the data for the person in office the longest. On another note, if a company issued stock options at multiple times within a year, I treat each stock option issuance as a separate data point, or essentially as a separate company. These actions result in a sample of 15 companies for 1997 and a sample of 18 companies for 2004.

In terms of the CAR calculation, I need stock price data around the award dates for the sample companies, and I gather this data from the CRSP database. Using the data, I calculate the abnormal returns following the Dodd and Warner [1983] methodology with a minor change. The focal point of Dodd and Warner's methodology was the following equation for abnormal returns:

$$AR_{it} = R_{it} - \hat{R}_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i Market).$$

Here, R_{it} is the continuously compounded rate of return to security *i* at event day *t*, and $Market$ is the continuously compounded rate of return to the CRSP value-weighted index at event day *t*. Also, $\hat{\alpha}_i$ and $\hat{\beta}_i$ are regression variable estimates derived from the regression $R_{it} = \alpha_i + \beta_i Market$ for a time period before that of the analysis. The change I make is that I use a holding period return provided by CRSP for R_{it}. I do this for simplicity reasons, although the different types of returns do provide an interesting topic for future research, and I discuss this in more detail later on. In his study, Yermack cumulated the abnormal returns to find CARs up to 20 trading days before the award date through data 120 days following the award, and I follow suit with my event time period as well. The equation I use to calculate the CAR values from the abnormal returns for firm *j* is straightforward:

$$CAR_j = \sum_{t=-20j}^{t=120j} AR_{jt}.$$

To accommodate for my event time period, I use the stock return values from 40 days before the award date to 20 days before the award date to calculate $\hat{\alpha}_i$ and $\hat{\beta}_i$. The sample companies and their respective $\hat{\alpha}_i$ and $\hat{\beta}_i$ values are shown in Exhibit 1 and

Exhibit 2. From the CAR data, I find the mean CAR value for each date in the event time period.

Up to this point, my study is essentially a replication of Yermack's work for data of different time periods. However, to investigate the effects of the regulation changes of the NYSE and NASDAQ, I look at the differences between the mean CARs for 1997 and the mean CARs for 2004. Taking the differences between the mean CARs for each date in the sample, I calculate the t-statistics for the data points. The null hypothesis here is that there has been no significant change between 1997 and 2004. In other words, I test the calculated differences to see if they are significantly different from zero. These calculations, although quite simple, provide a glimpse of how the daily CARs have changed over the years.

While the previous calculations reveal the CAR changes on specific dates with respect to the award date, of even greater importance is the trend of the CARs around the award date. The general trend further reflects the overall impact of the regulation changes. Assuming the changes did indeed hamper the mean CAR values, one can expect the 1997 data to trend upwards at a faster rate than the 2004 data. I explore the trends by regressing mean CARs against days relative to award. Here, the mean CARs are the dependent variable, and the days relative to award are the independent variable. An integral part of Yermack's study was that the mean CARs continue to trend significantly upwards starting from the award date all the way through the 120^{th} day after the award date. Yermack found no such trend prior to the award date, however, signaling the opportunistic timing of the awards. I seek to see whether Yermack's trend holds true for

Exhibit 1: 1997 Sample Set Key Information					
	Company (Ticker Symbol)	Grant Date Stock Price (from Execucomp)	Award Date	Alpha	Beta
1	Wal-mart Stores (WMT)	24	1/10/1997	-0.0036	0.1462
2	Ford Motor (F)	31.9375	3/14/1997	-0.0015	0.6749
3	ChevronTexaco A (CVXA)	80.938	10/29/1997	0.0002	1.4889
4	ChevronTexaco B (CVXB)	72.125	3/26/1997	-0.0012	1.0160
5	Kroger (KR)	26.88	5/12/1997	-0.0033	0.4547
6	Target (TGT)	37.38	1/8/1997	0.0043	0.9660
7	Bank of America Corp. (BAC)	65.375	7/1/1997	-0.0055	1.0895
8	Costco Wholesale (COST)	26.875	4/2/1997	-0.0011	0.2654
9	Dell A (DELLA)	37.062	3/5/1997	0.0045	1.1751
10	Dell B (DELLB)	74.08	7/18/1997	0.0056	1.0631
11	Dow Chemical (DOW)	79.9375	2/12/1997	0.0017	0.4124
12	United Technologies (UTX)	75.875	2/24/1997	0.0003	0.6846
13	Intel (INTC)	69.69	4/22/1997	-0.0044	1.0689
14	UnitedHealth Group A (UNHA)	46.875	2/11/1997	-0.0024	0.2038
15	UnitedHealth Group B (UNHB)	43.0625	10/27/1997	0.0000	0.6654

Exhibit 2: 2004 Sample Set Key Information					
	Company (Ticker Symbol)	Grant Date Stock Price (from Execucomp)	Award Date	Alpha	Beta
1	Wal-Mart Stores (WMT)	53.35	1/5/2004	-0.0056	0.5769
2	Ford Motor (F)	16.49	1/5/2004	0.0028	1.3590
3	ChevronTexaco (CVX)	47.055	6/30/2004	-0.0009	1.1880
4	Intl. Business Machines (IBM)	105.96	2/24/2004	0.0001	1.2918
5	Kroger (KR)	17.31	5/6/2004	-0.0048	1.2058
6	Target (TGT)	38.25	1/14/2004	-0.0011	1.2938
7	Bank of America Corp. (BAC)	81.55	2/2/2004	0.0015	0.6839
8	Costco Wholesale (COST)	37.35	4/1/2004	0.0012	0.7992
9	Johnson & Johnson (JNJ)	53.93	2/9/2004	0.0008	0.3576
10	Dell (DELL)	32.985	3/4/2004	-0.0027	0.8222
11	Marathon Oil (MRO)	33.61	5/26/2004	0.0048	1.0858
12	MetLife (MET)	35.26	2/17/2004	-0.0016	0.6285
13	Dow Chemical (DOW)	43.49	2/13/2004	-0.0035	1.8899
14	Allstate (ALL)	45.96	2/6/2004	0.0010	0.5805
15	Wells Fargo (WFC)	56.86	2/23/2004	-0.0027	0.8287
16	United Technologies (UTX)	93.52	1/9/2004	0.0014	0.9897
17	Intel (INTC)	27.00	4/15/2004	-0.0032	1.4485
18	UnitedHealth Group (UNH)	59.40	2/11/2004	0.0033	-0.2025

my pre-change and post-change numbers, and if the post-change trend is suppressed in comparison to the pre-change trend. As such, I compare the coefficients calculated for my 1997 data and for my 2004 data.

IV. Results and Discussion

Examining the differences between the 1997 mean CARs and the 2004 mean CARs, I find that the 2004 mean CARs are indeed dampened in comparison to the 1997 values. In fact, the only date at which the 1997 mean CAR is not greater than the 2004 mean CAR is at day -20. Furthermore, in general, the differences become more significant as time progresses. Exhibit 3 shows that the differences are significant at a 10% level at the 60th and 70th day after the award date, and that they are significant at a 1% level as early as the 90th day after the award date.

The regressions provide further support of how great the difference is between the two sets of mean CARs. The two regressions followed the simple form:

$$mean\_CAR = \beta_0 + \beta_1 days\_relative\_to\_award .$$

I find that the coefficient, or β_1, for 1997 is over two times greater than that for 2004. Exhibit 4 and Exhibit 5 present this data in graph form. Of particular interest in Exhibit 4 is the mean CAR activity around the award date, or lack thereof for 2004. When Yermack conducted his study, he found a significant jump in mean CARs just after the award date. Looking at the graph of the 1997 mean CARs, I notice a similar jump in value at the stock option grant date. The mean CAR value drops on the day of the stock option award and then rises immediately afterwards. However, the jump at the award date is not especially pronounced in my 1997 data. In fact, there is an even greater jump 20 days after the stock option award. Interestingly enough, in 2004, there are no

Exhibit 3: Comparison of Mean CARs					
Days Relative to Award	1997 Mean CAR (%)	2004 Mean CAR (%)	Difference (1997-2004)	t-statistic (H0: difference = 0)	
-20	-0.0072	-0.0046	-0.0026	-0.0619	
-15	0.0154	0.0062	0.0092	0.2174	
-10	0.0430	0.0203	0.0228	0.5385	
-9	0.0429	0.0246	0.0183	0.4328	
-8	0.0408	0.0290	0.0118	0.2783	
-7	0.0450	0.0260	0.0190	0.4497	
-6	0.0451	0.0279	0.0172	0.4067	
-5	0.0502	0.0260	0.0242	0.5721	
-4	0.0454	0.0235	0.0219	0.5189	
-3	0.0494	0.0220	0.0274	0.6478	
-2	0.0558	0.0242	0.0316	0.7479	
-1	0.0612	0.0266	0.0346	0.8188	
0	0.0492	0.0266	0.0227	0.5363	
1	0.0617	0.0230	0.0387	0.9141	
2	0.0674	0.0284	0.0390	0.9230	
3	0.0702	0.0317	0.0385	0.9092	
4	0.0672	0.0286	0.0386	0.9132	
5	0.0555	0.0304	0.0251	0.5943	
6	0.0571	0.0304	0.0266	0.6297	
7	0.0605	0.0299	0.0307	0.7255	
8	0.0604	0.0316	0.0288	0.6813	
9	0.0651	0.0298	0.0353	0.8348	
10	0.0677	0.0340	0.0337	0.7963	
15	0.0736	0.0416	0.0320	0.7567	
20	0.1017	0.0416	0.0601	1.4217	
30	0.0981	0.0558	0.0424	1.0013	
40	0.1185	0.0725	0.0460	1.0874	
50	0.1380	0.0796	0.0584	1.3810	
60	0.1648	0.0786	0.0862	2.0376	*
70	0.1561	0.0801	0.0759	1.7951	*
80	0.1802	0.1112	0.0690	1.6318	
90	0.2160	0.0958	0.1202	2.8427	**
100	0.2271	0.1029	0.1242	2.9362	**
110	0.2377	0.1042	0.1335	3.1563	**
120	0.2788	0.1097	0.1691	3.9981	**

**Significant at 1% level.

*Significant at 10% level.

Exhibit 4: Comparison of Mean CARs

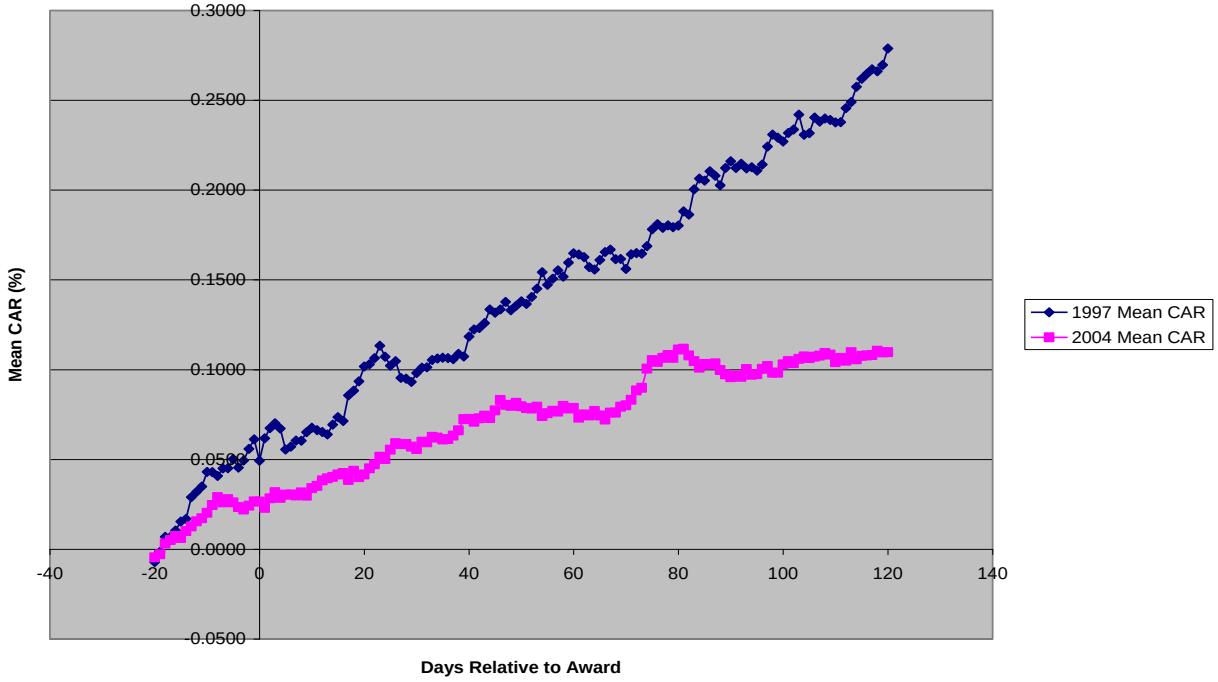
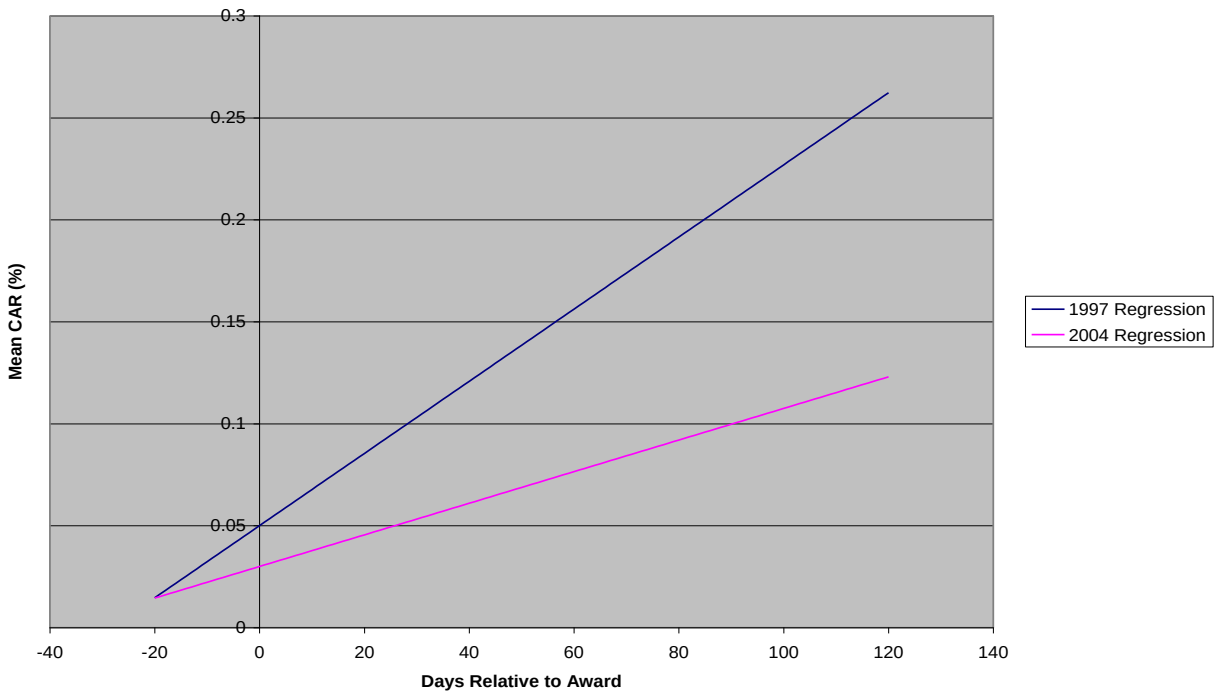


Exhibit 5: Comparison of Regressions



obvious jumps in the mean CAR values. So, the 2004 mean CARs are suppressed and appear to be smoother than the 1997 mean CARs.

The significance of the differences in mean CAR values and the lack of a mean CAR jump in 2004 lead me to conclude that an external or environmental change decreased the ability of managers to influence their stock option award timing. The regulation changes of 2003 provide a quick and easy explanation for the additional controls on CEOs. However, I hesitate to place all the “blame” on the regulation changes made by the NYSE and NASDAQ. While the regulation changes seem like the obvious answer, there may be implicit and unobservable contracts that worked alongside the explicit regulations to affect the timing of stock options. Nevertheless, the regulation changes do seem to have at least contributed to, if not completely caused, the suppressed 2004 mean CARs.

V. Research Extensions

These results lead to some further questions. First, as touched upon earlier, one might consider the effects of using different definitions of the R_{it} and $Market$ values. The CRSP database provides many variations on the market return calculation, with each variation weighting the components of the market return differently. Also, my use of the holding period return for R_{it} may have led to different results from those I would have found had I instead used a continuously compounded rate of return for R_{it}. Specifically, Yermack’s data reveals a growth rate of mean CARs far greater than that of my data for both 1997 and 2004. Using the holding period returns for my firm return values could have further suppressed the mean CAR values in my data. There is also the possibility that even between the time period of 1992 to 1994 (the time period for

Yermack's data) and the 1997 time period I use, there were changes in the external environment placing additional controls on the influence CEOs had over the timing of their own stock option awards. One possibility is that companies began to reward stock options at approximately the same time each year. Such a reward schedule would clearly obstruct the CEO's ability to time the arrival of good news with her stock option grants. Another possibility is that companies extended the waiting time before the vesting period of the stock options began. By pushing the vesting period farther into the future, the companies would be aligning the CEO's interests with long-term company success. As with the routine stock option award schedule, this change in the vesting period would make it difficult for the CEO to manipulate the timing of her stock option awards to coincide with good news. Or at the very least, the CEO would be focused on performing well in the long run to have good news arrive just after the vesting period began. These questions are beyond the scope of my study, but they lend themselves as topics for further research.

Another point of contention is whether awarding CEOs stock options just before the release of good news is detrimental for the company and its stakeholders in the first place. Perhaps it is in the best interest of certain companies to time their stock option grants in such a fashion to provide a stronger performance incentive for their CEOs. Oftentimes, the general public holds the notion that CEOs getting paid large sums of money is necessarily a harmful action for the company. What is overlooked is the potential explanation that companies must pay high incentives in order to promote certain actions from their respective CEOs. Moreover, if a company pays too much, then it will fail while other companies succeed. However, the connection between this

company self-selection idea and CEO compensation becomes blurred during times of recession, especially when the government awards company bailouts. In such a situation, the extraordinary payments to CEOs are far less defensible as the public suffers from the recession. Again, this question of what is best for a company or for the economy in general is beyond the scope of my study, but it is an interesting topic for future research.

VI. Conclusion

My study explores the timing issues presented in Yermack [1997], but with respect to the regulation changes enacted by the NYSE and NASDAQ in 2003. I look at two sets of data: one representing companies that granted stock options in 1997 (before the changes) and another representing companies that granted stock options in 2004 (after the changes). From my results, I find that the 2004 mean CAR values around the stock option award date are dampened in comparison to the respective 1997 mean CARs. This dampening leads me to conclude that the regulation changes indeed affected the mean CARs and provided additional controls over CEO manipulation of stock option award timing.

Although the results lead to a conclusion of the regulation changes being effective, they also lead to more questions as well. Neither my 1997 data nor my 2004 data showed as great of an increase in mean CARs as was presented in Yermack's study. I question whether this is a result of a difference in methodology or a result of changes in the external environment. Furthermore, I consider the possibility that timing CEO stock option awards to match the release of good news is actually helpful for the company, rather than harmful (as is generally accepted). While these questions are

beyond the scope of my study, they present themselves as interesting topics for future research.

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